

CLAIMS

1. A locking cover for a ground opening such as a well or manhole, comprising:

5 a) a shroud that can be anchored to the earth at the ground opening, the shroud having an outer wall with an inner surface, a central opening, and a shoulder that extends inwardly from the outer wall;

b) a lid that is movably attached to the shroud, the lid having a periphery that is sized and shaped to fit shroud, the lid having upper and lower surfaces a peripheral portion of the lid registering with and resting upon the shoulder when the lid is in a closed position;

10 c) a lock that extends through the lid, communicating with the upper and lower surfaces of the lid, the lock including a key slot positioned next to the upper surface and a locking member that is rotatable between a first locking position that places the locking member under the shoulder and a second, unlocked position that places the locking member within the periphery of the lid; and

20 d) a key that is keyed to fit the lock and rotate the lock, the key accessing the lock via the lid upper surface and lock opening, wherein rotation of the key in one rotational direction enables a user to place the locking member in the locking position and rotation of the key in another rotational direction enables a user to place the locking member in the unlocked position.

2. The ground opening locking cover apparatus of claim 1 wherein the lid is hingedly connected to the shroud.

3. The apparatus of claim 1 wherein the shroud outer wall and the shoulder form an angle of between about 89 and 91 degrees.

25 4. The apparatus of claim 2 wherein the lid has an interlocking structure spaced circumferentially away from the lock that interlocks with the shoulder.

5. The apparatus of claim 4 wherein the interlocking structure includes first and second radially extending projecting portions that extends, one above and one below, the shoulder.

30 6. The apparatus of claim 5 wherein at least one projecting portion extends very close to the inside surface of the outer wall, above the shoulder.

7. The apparatus of claim 1 further comprising indicia on the lower surface of the lid that carries data identifying an installation below the ground opening.

8. The apparatus of claim 1 wherein the lock is a rotating lock wherein rotation of the key rotates the loading member an equal rotational amount.

5 9. The apparatus of claim 1 wherein the lid is hingedly attached to the shroud and the lock is attached to the lid at a position that is spaced from the hinge.

10. A locking cover for a ground opening such as a well or manhole, comprising:

a) a shroud that can be anchored to the earth at the ground opening, the shroud having an outer wall with an inner surface, a central opening, and a shoulder that extends inwardly from the outer wall;

b) a lid that is attachable to or completely removable from the shroud, the lid having a periphery that is sized and shaped to fit the shroud and rest upon the shoulder when the lid is in an open position, wherein an interlocking portion of the lid extends above and below the shoulder of the shroud at a first position;

c) a lock that extends through the lid, communicating with the upper and lower surfaces of the lid, the lock including a key slot positioned next to the upper surface and a locking member that is rotatable between a first locking position that places the locking member under the shoulder and a second, unlocked position that places the locking member within the periphery of the lid at a second position that is spaced away from the first position; and

d) a key that is keyed to fit the lock and rotate the lock, the key accessing the lock via the lid upper surface and lock opening, wherein rotation of the key in one rotational direction enables a user to place the locking member in the locking position and rotation of the key in another rotational direction enables a user to place the locking member in the unlocked position.

11. The cover of claim 10 wherein the shroud outer wall and the shoulder form an angle of between about 89 and 91 degrees.

12. The cover of claim 10 wherein the interlocking structure includes first and second radially extending projecting portions that extends, one above and one below, the shoulder.

13. The cover of claim 12 wherein at least one projecting portion extends very close to the inside surface of the outer wall, above the shoulder.

14. The cover of claim 10 further comprising indicia on the lower surface of the lid that carries data identifying an installation below the ground opening.

5 15. The cover of claim 10 wherein the lock is a rotating lock wherein rotation of the key rotates the loading member an equal rotational amount.

16. The cover of claim 1 wherein the lid is generally circular in shape.

17. The cover of claim 10 wherein the lid is generally circular in shape.

10 18. The cover of claim 1 wherein the shroud is an existing shroud and the lid is a retrofit to the existing shroud.

19. The cover of claim 10 wherein the shroud is an existing shroud and the lid is a retrofit to the existing shroud.

20. A method of retrofitting a security cover to a ground opening such as a manhole, catch basin, well or the like that is fitted with an existing shroud having an wall
15 with an inner surface and a shoulder that extends inwardly from the wall inner surface, comprising the steps of:

a) providing a lid with a periphery and a plurality of interlocking structures spaced about the periphery at first and second positions, wherein at least a first of the interlocking structure having projecting portions that extend above and below the
20 shoulder;

b) interlocking the first interlocking structure with the shoulder;

c) using a key to interlock the second interlocking with the shoulder, wherein the lid is removable from the shroud only by using the key to release the second interlocking structure from the shoulder.

25 21. The method of claim 20 wherein both interlocking structures have projecting portions that extend below the shoulder when the apparatus is locked using the key.

22. The method of claim 20 wherein in step "c" the key rotates a lock of the second interlocking structure.

30 23. The method of claim 20 wherein in step "a" the interlocking structures are spaced circumferentially apart at least 90 degrees.

24. The method of claim 20 wherein in step "a" the interlocking structures are spaced circumferentially about one hundred eighty degrees apart.

25. The method of claim 20 wherein in step "c" the key is insertable into the second interlocking structure at an upper surface of the lid.

5 26. The inventions substantially as shown and/or described herein.

27. A locking cover for covering a ground opening such as a well or manhole, comprising:

a) a shroud anchored to the earth at the ground opening, the shroud having an outer wall with an inner surface, a central opening that registers with the ground opening, and a shoulder that extends inwardly from the outer wall;

b) a lid that is movably attached to the shroud, the lid having a periphery that is sized and shaped to fit the shroud, the lid having upper and lower surfaces, a peripheral portion of the lid registering with and resting upon the shoulder when the lid is in a closed position;

15 c) a locking device on the lid that includes a key slot positioned next to the upper surface and a locking member that is rotatable between a first locking position that places the locking member under the shoulder and a second, unlocked position that spaces the locking member inwardly of the shroud; and

d) a key that is keyed to fit and rotate with the locking member, the key accessing the locking member via the lid upper surface and lock opening, wherein rotation of the key in one rotational direction enables a user to place the locking member in the locking position and rotation of the key in another rotational direction enables a user to place the locking member in the unlocked position.

25 28. The ground opening locking cover apparatus of claim 27 wherein the lid is hingedly connected to the shroud.

29. The apparatus of claim 27 wherein the shroud outer wall and the shoulder form an angle of between about 89 and 91 degrees.

30. The apparatus of claim 28 wherein the lid has an interlocking structure spaced circumferentially away from the lock that interlocks with the shoulder.

30 31. The apparatus of claim 30 wherein the interlocking structure includes first and second radially extending projecting portions that extends, one above and one

below, the shoulder.

32. The apparatus of claim 31 wherein at least one projecting portion extends very close to the inside surface of the outer wall, above the shoulder.

33. The apparatus of claim 27 further comprising indicia on the lower surface
5 of the lid that carries data identifying an installation below the ground opening.

34. The apparatus of claim 27 wherein the lock is a rotating lock wherein rotation of the key rotates the loading member an equal rotational amount.

35. The apparatus of claim 27 wherein the lid is hingedly attached to the shroud and the lock is attached to the lid at a position that is spaced from the hinge.

10 36. A locking cover for a ground opening such as a well or manhole, comprising:

a) a shroud anchored to the earth at the ground opening, the shroud having an outer wall with an inner surface, a central opening aligned generally with the ground opening, and a shoulder that extends inwardly from the outer wall;

15 b) a lid that is attachable to or removable from the shroud, the lid having a periphery that is sized and shaped to fit the shroud and rest upon the shoulder when the lid is in an open position, wherein an interlocking portion of the lid extends at least above and below the shoulder of the shroud at a first position;

20 c) a lock that extends through the lid, communicating with the upper and lower surfaces of the lid, the lock including a key slot positioned next to the upper surface and a locking member that is rotatable between a first locking position that places the locking member under the shoulder and a second, unlocked position that places the locking member within the periphery of the lid at a second position that is spaced away from the first position; and

25 d) a key that is keyed to fit the lock and rotate the lock, the key accessing the lock via the lid upper surface and lock opening, wherein rotation of the key in one rotational direction enables a user to place the locking member in the locking position and rotation of the key in another rotational direction enables a user to place the locking member in the unlocked position.

30 37. The cover of claim 36 wherein the shroud outer wall and the shoulder form an angle of between about 89 and 91 degrees.

38. The cover of claim 36 wherein the interlocking structure includes first and second radically extending projecting portions that extends, one above and one below, the shoulder.

5 39. The cover of claim 38 wherein at least one projecting portion extends very close to the inside surface of the outer wall, above the shoulder.

40. The cover of claim 36 further comprising indicia on the lower surface of the lid that carries data identifying an installation below the ground opening.

41. The cover of claim 36 wherein the lock is a rotating lock wherein rotation of the key rotates the loading member an equal rotational amount.

10 42. The cover of claim 27 wherein the lid is generally circular in shape.

43. The cover of claim 36 wherein the lid is generally circular in shape.

44. The cover of claim 27 wherein the shroud is an existing shroud and the lid is a retrofit to the existing shroud.

15 45. The cover of claim 36 wherein the shroud is an existing shroud and the lid is a retrofit to the existing shroud.

46. A method of retrofitting a security cover to a ground opening having an existing shroud that has a wall with an inner surface and a shoulder that extends inwardly from the wall inner surface, comprising the steps of:

20 a) providing a lid with a periphery and a plurality of interlocking structures spaced about the periphery at first and second positions, wherein at least a first of the interlocking structure has at least one projecting portion that extends above and below the shoulder;

b) interlocking the first interlocking structure with the shoulder;

25 c) using a key to interlock the second interlocking structure with the shoulder, wherein the lid is removable from the shroud only by using the key to release the second interlocking structure from the shoulder.

47. The method of claim 46 wherein both interlocking structures have projecting portions that extend below the shoulder when the apparatus is locked using the key.

30 48. The method of claim 46 wherein in step "c" the key rotates a lock of the second interlocking structure.

49. The method of claim 46 wherein in step "a" the interlocking structures are spaced circumferentially apart at least 90 degrees.

50. The method of claim 46 wherein in step "a" the interlocking structures are spaced circumferentially about one hundred eighty degrees apart.

5 51. The method of claim 46 wherein in step "c" the key is insertable into the second interlocking structure at an upper surface of the lid.